

Kaw Nation Wind-Biomass Energy Project – Feasibility Phase DOE Denver Briefing

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**Renewable Energy
Development on Tribal
Lands**

FY 2002 Projects

Dept. of Energy Grant

November 19, 2003



Kaw Nation Wind-Biomass Energy Project

Feasibility Phase

Briefing Outline

- ***Project Overview***
- ***Project Location***
- ***Project Participants***
- ***Objectives***
- ***Project Status***
- ***Future Plans***
- ***Questions***

Project Overview

Gift to the Wind People

- *In considering Energy Resources it is relevant that the Kaw, or Kanza, utilize the gift of wind power.*
- *The Nation's name derived from three subdivisions:*
 - *Tadje jinga: "Makes-a-breeze-near-the-ground"*
 - *Ak'a unikacinga: "South Wind People"*
 - *Tadje unikacinga: "Wind People"*
- *The Kanza have revered the South Wind in all ceremonial activities. (Kau-zau or Konzas, second syllable scarcely audible)*

Project Overview

(continued)

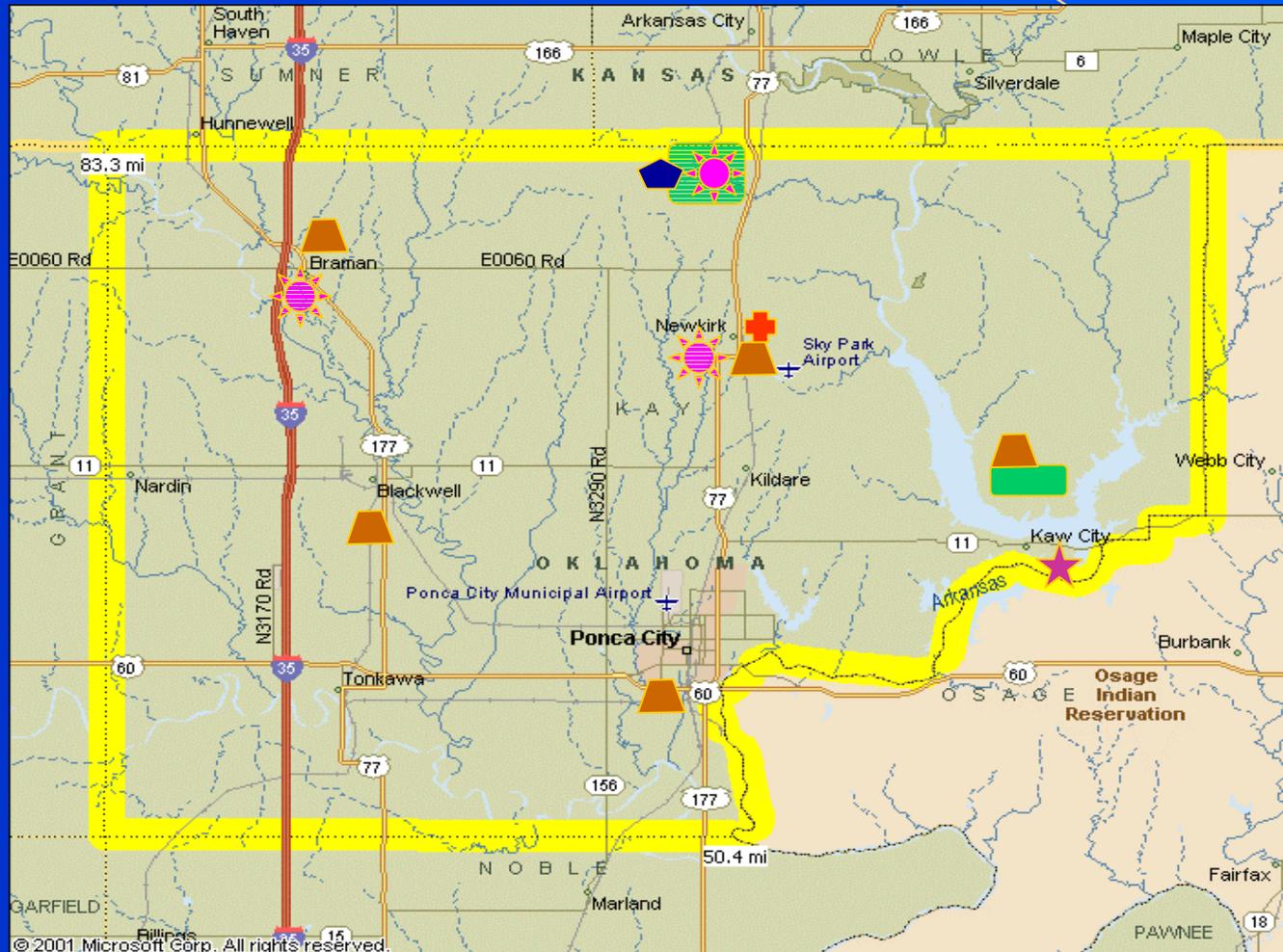
Project Goal:

Identify optimal low-cost, renewable energy to serve tribal members and enterprises... while providing opportunity for sustainable economic expansion on tribal lands.



Project Location

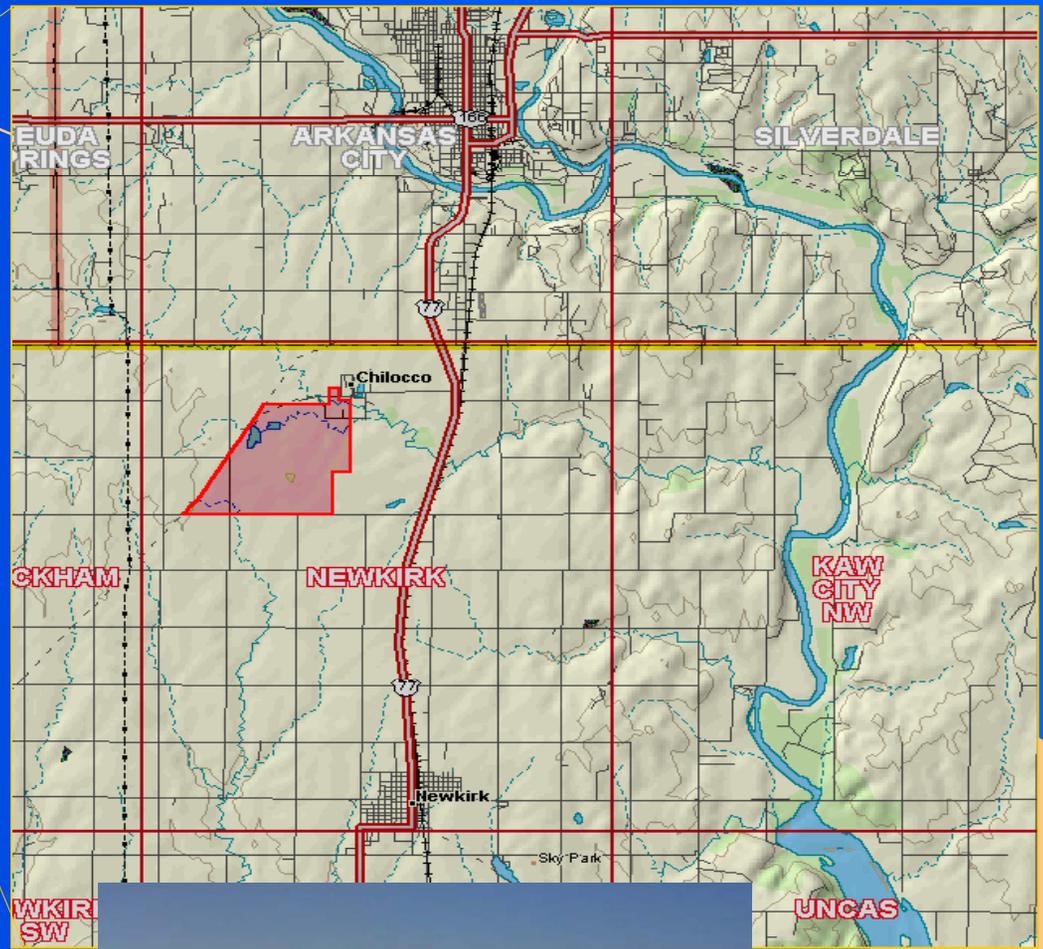
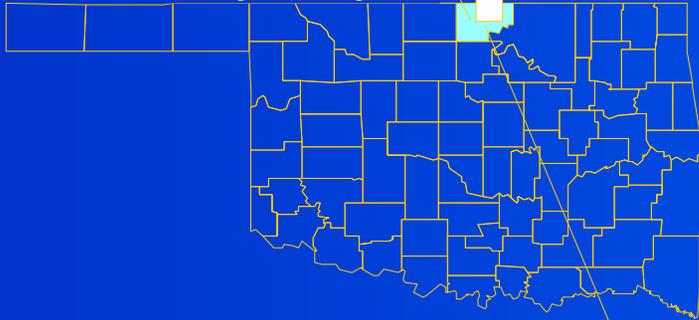
-  Wind sites
-  Nation HQ
-  Housing or Enterprise
-  Med Clinic & Social Services
-  Trust Lands



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Project Location (continued)

Kay County, OK



Chilocco, OK

Joint Tribal Ownership

Kaw Ponca Pawnee
Otoe-Missouria Tonkawa



Project Location (continued)

- **Kay County, Oklahoma**
 - Chilocco Area development of trust lands
 - Integrated development (Inter-tribal coop)
- **Examples of Major Developments**
 - **NA Tech. Training Center**
 - Wind Center of Excellence
 - Associated inter-tribal enterprises
 - Other jobs in region
 - **Aircraft Machine Shop to support regional aircraft manufacture in Wichita, KS**
 - **Operate Wind DEG system to power other Chilocco developments (e.g.)**
 - Native American Diabetes Ctr (5+ yrs)
 - Native American Community College at Chilocco renewed campus (5+ yrs)
 - NA School of Government (NCIC)
 - Elder Care Facilities



Project Participants

- **Kaw Nation**
 - General & Executive Councils
 - Utilities Commission (KNUC)
 - Environmental Dept (KNED)
 - Cultural Cmte (Cultural Studies)
- **Chilocco (NC) Inter-Tribal Council & Other NA Nations**
- **Oklahoma Wind Power Initiative (OWPI, State)**
- **OG&E Power Distributor**
 - Oklahoma Municipal Power Authority (OMPA)
 - SW Power Pool (SPP)
- **Kay County communities**
- **Contractors**
 - Dale Osborn, Distributed Generation Systems (Disgen)
 - Ed McCarthy (Met Studies)
 - Western EcoSystems Technologies, Inc. (Avian Assessment)
- **Intertribal Council on Utility Policy**
 - Bob Gough (Secretary)
- **Council of Energy Resource Tribes (CERT)**
- **DOE Labs**
 - NREL, Sandia, Berkley

Objectives

Feasibility Assessment & Subsequent Wind Development

- **Maximize Tribal Economic Benefits**
 - Explore ways to employ Wind power to lower electric rates &/or offset production costs
 - Determine tribal energy requirements for services, enterprises & proposed Chilocco enterprises
 - Determine cost/benefit potential: selling local power vs exporting to regional markets to create revenues
- **Create NA Employment opportunities**
 - Proposed wind development will address:
 - # jobs & skills to operate & maintain proposed facilities
 - Staff current & future needs of present tribal ops
 - Staff businesses & services for proposed Chilocco development

Objectives *(continued)*

Feasibility Assessment & Subsequent Wind Development

- **Technology Transfer to tribal members, resource & enterprise management**
 - Disgen to provide Kaw Nation w/training materials to assess & develop wind facilities
 - Establish skill set within tribal membership
 - Project success will enable enterprise expansion & realization of Tribal energy self-sufficiency to offset current energy costs (Facilities Energy Audits/Conservation)
- **Develop Energy Sources**
 - **Primary: Wind Power**
 - **Supplement: Power company grid distribution capacity**

Project Status

Feasibility Assessment & Subsequent Wind Development

- **Accomplishments**
- **Technical & Management Issues**
- **Activities Yet to Be Completed**

Project Status (continued)

Kaw Nation Wind Energy Project Background

- **In 2002 Department of Energy awarded the Kaw Nation \$280K for wind energy feasibility assessment.**
- **Distributed Generation Systems, Inc. (DISGEN) co-wrote the application and is the contractor serving the Kaw Nation.**
- **DISGEN also is a contractor for the Northern Cheyenne in Montana, the Menominee in Wisconsin and the Rosebud Sioux in South Dakota**

Project Status (continued)

Accomplishments

- **Resource Assessment (70%)**
 - A meteorological tower was installed at Chilocco in November 2002 and data is recorded monthly. First yrs data collected.
 - The wind speed has averaged 15.0 mph to date, better than expected. Little variability in wind resource power potential.
- **Transmission Capability & Power Market Assessment (70%)**
 - Prelim discussions w/ transmission entities indicate a willingness to work with the Kaw Nation on the project.
 - Includes Southwest Power Pool, OG&E and OMPA
- **Phase I Environmental Impact Assessment (60%)**
 - A preliminary avian assessment has been completed with no significant impacts identified.
 - KNED preparing for other NEPA studies

Project Status

Accomplishments (continued)

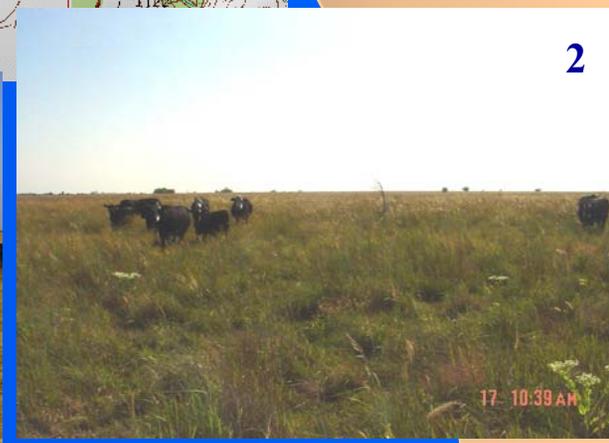
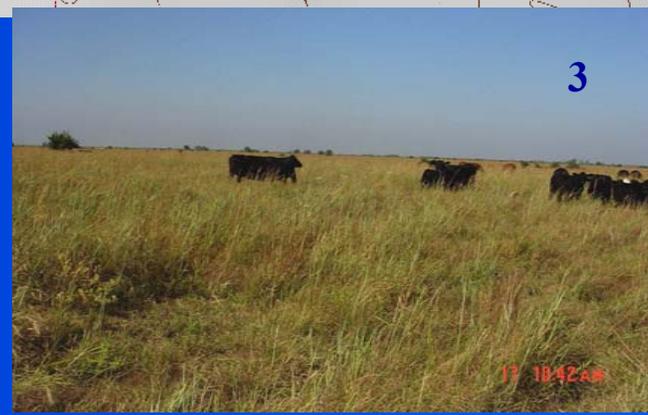
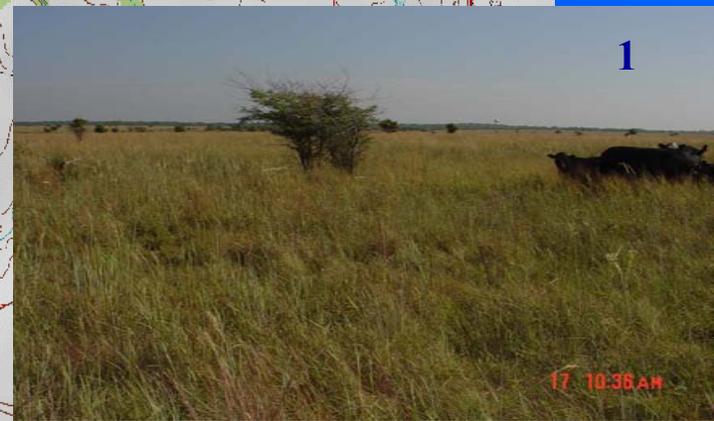
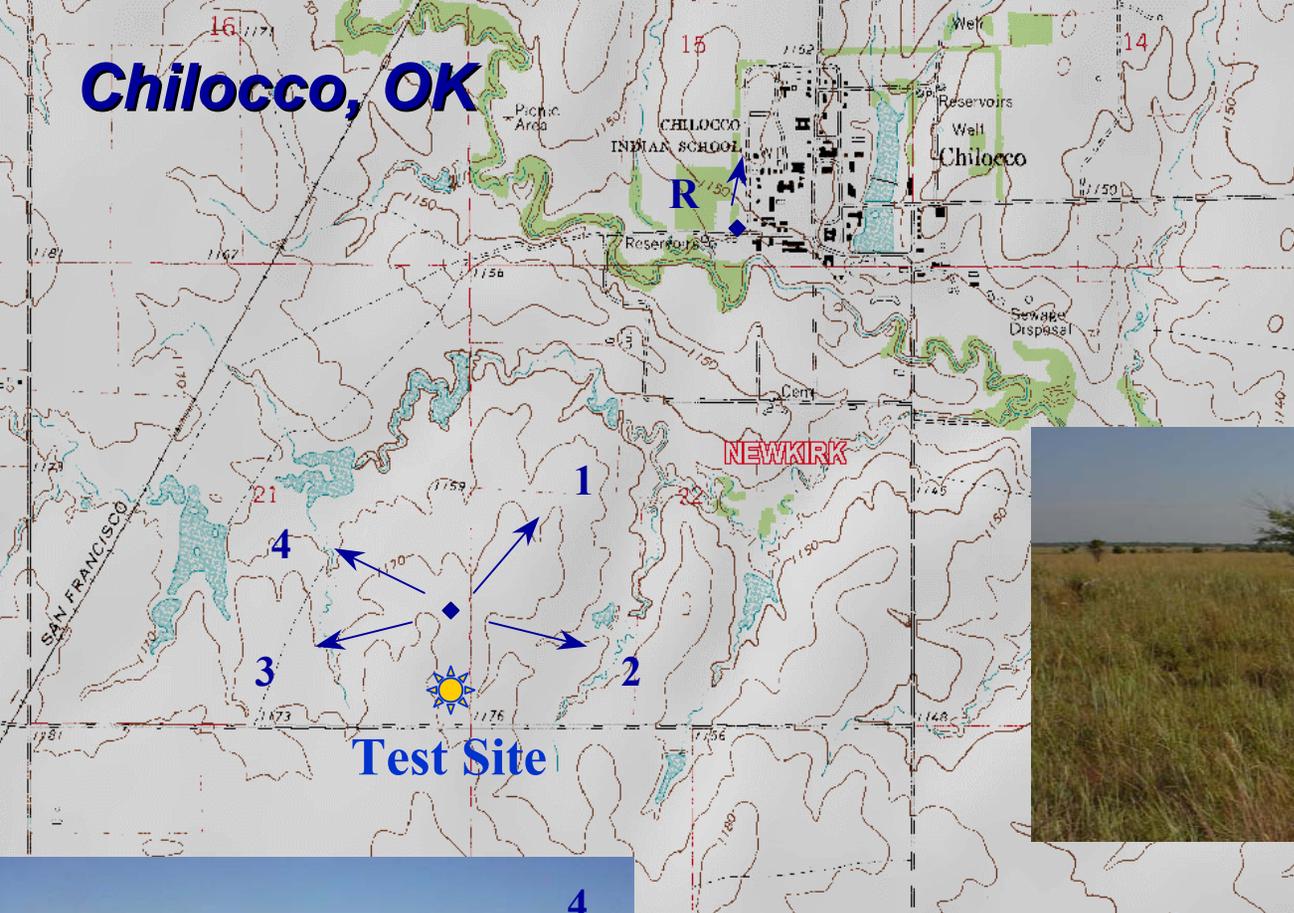
- **Cultural & Socioeconomic Impacts (50%)**
 - Cultural studies will be completed before the end of 2003.
 - NA member interviews to be continued in development phase
 - GPR conducted at selected locations to ID FFA & define more detail work requirements during Development Phase.
 - Evaluating biomass potential, so far see limitations:
 - USDA & ODA NCOK studies reviewed
 - Feedstock transportation costs likely prohibitive
 - Long-term biomass fuel sources limited, energy gencap limited
 - Attending support infrastructure needs development along with byproduct marketing studies
- **Doc & Rpt on Econ Benefits & Business Plan Develop. (40%)**
 - Currently completing Pro-forma & Proj. Econ Evaluations
 - The Feasibility Study will be completed in early 2004.

Project Status (continued)

Technical & Management Issues

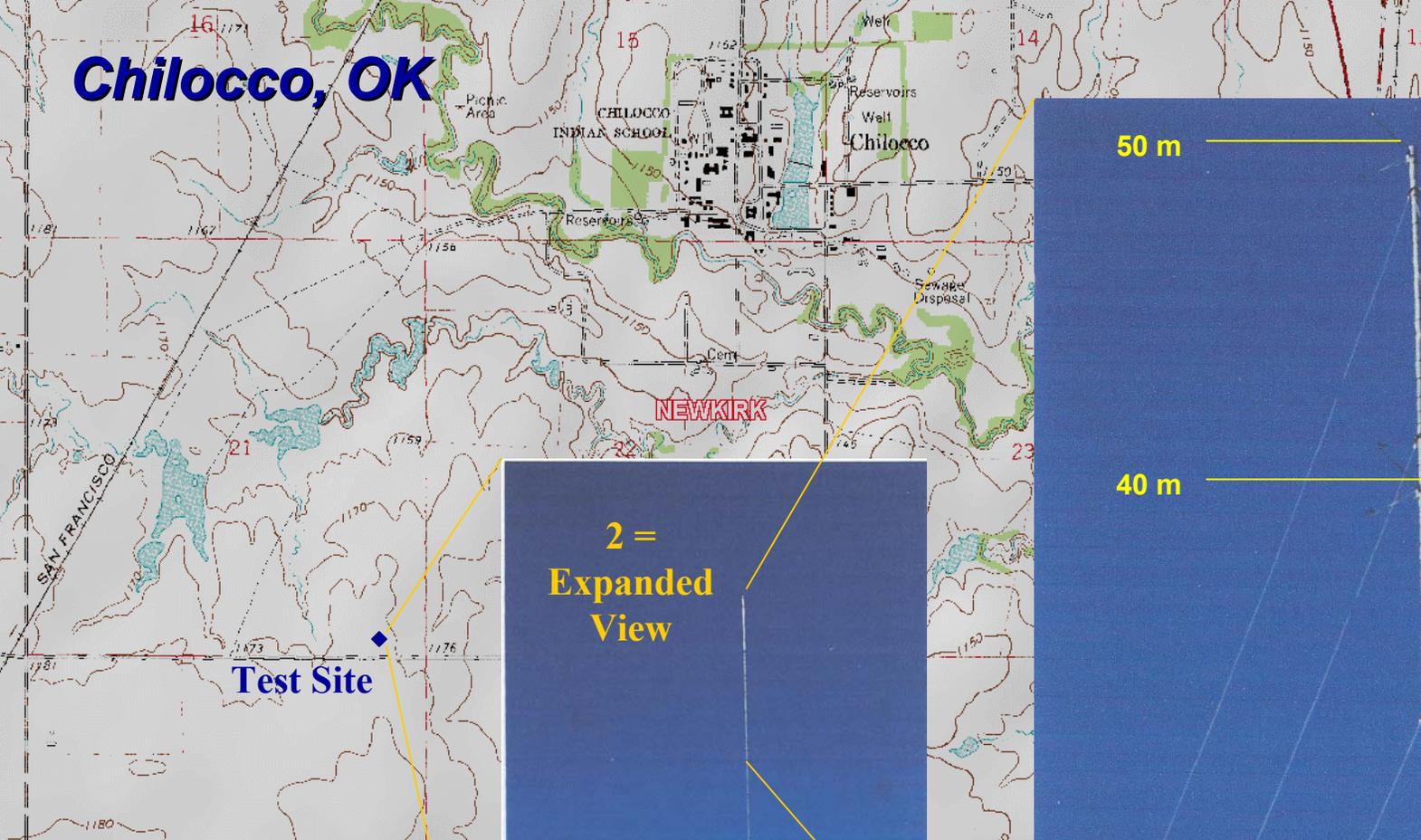
- **Wind Resource Adequate**
 - Small variations month to month, steady power
 - Class 3-4 Wind Resource at 50m
 - Grid and farm production feasible
- **Management Issues**
 - Personnel changes overcome
 - GC education on Wind Energy issues and building KN community interest continues
 - FP cost & schedule in line for timely completion

Chillico, OK



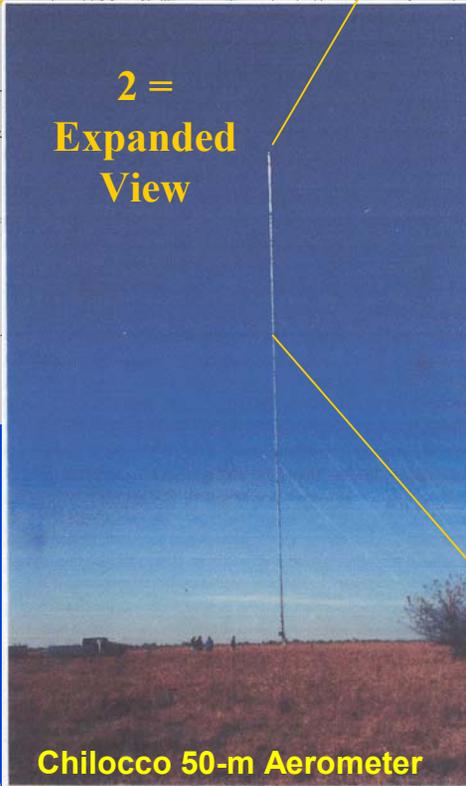
Project Status
Technical & Management Issues (continued)

Chilocco, OK

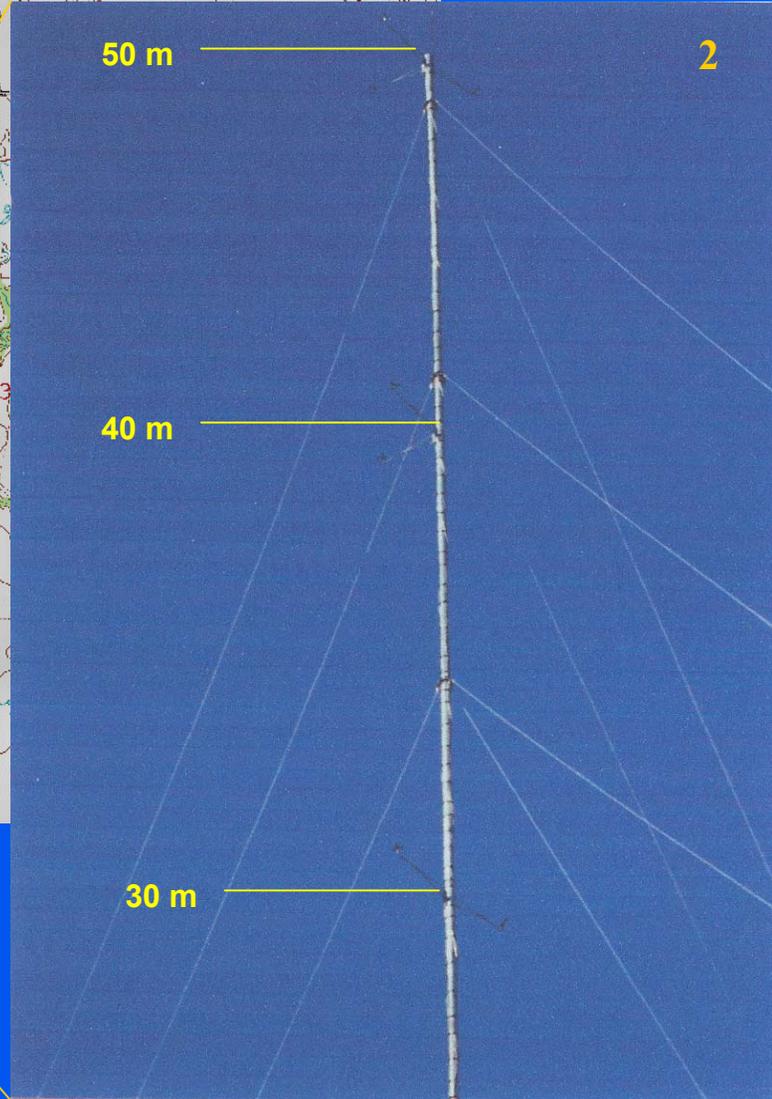


Test Site

2 =
Expanded
View



Chilocco 50-m Aerometer



50 m

2

40 m

30 m

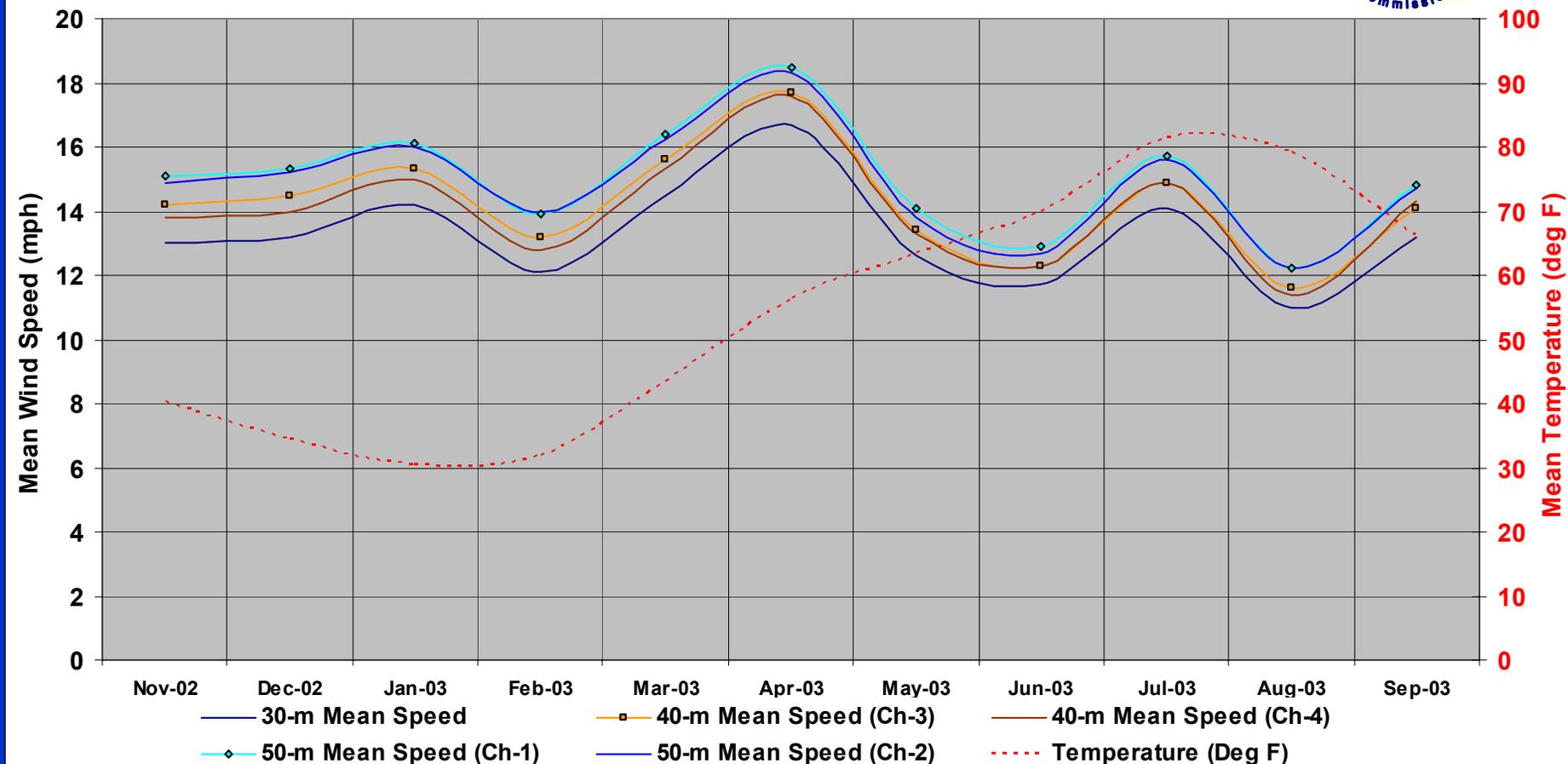
Project Status
Technical &
Management Issues
(continued)

Project Status

Technical & Management Issues (continued)



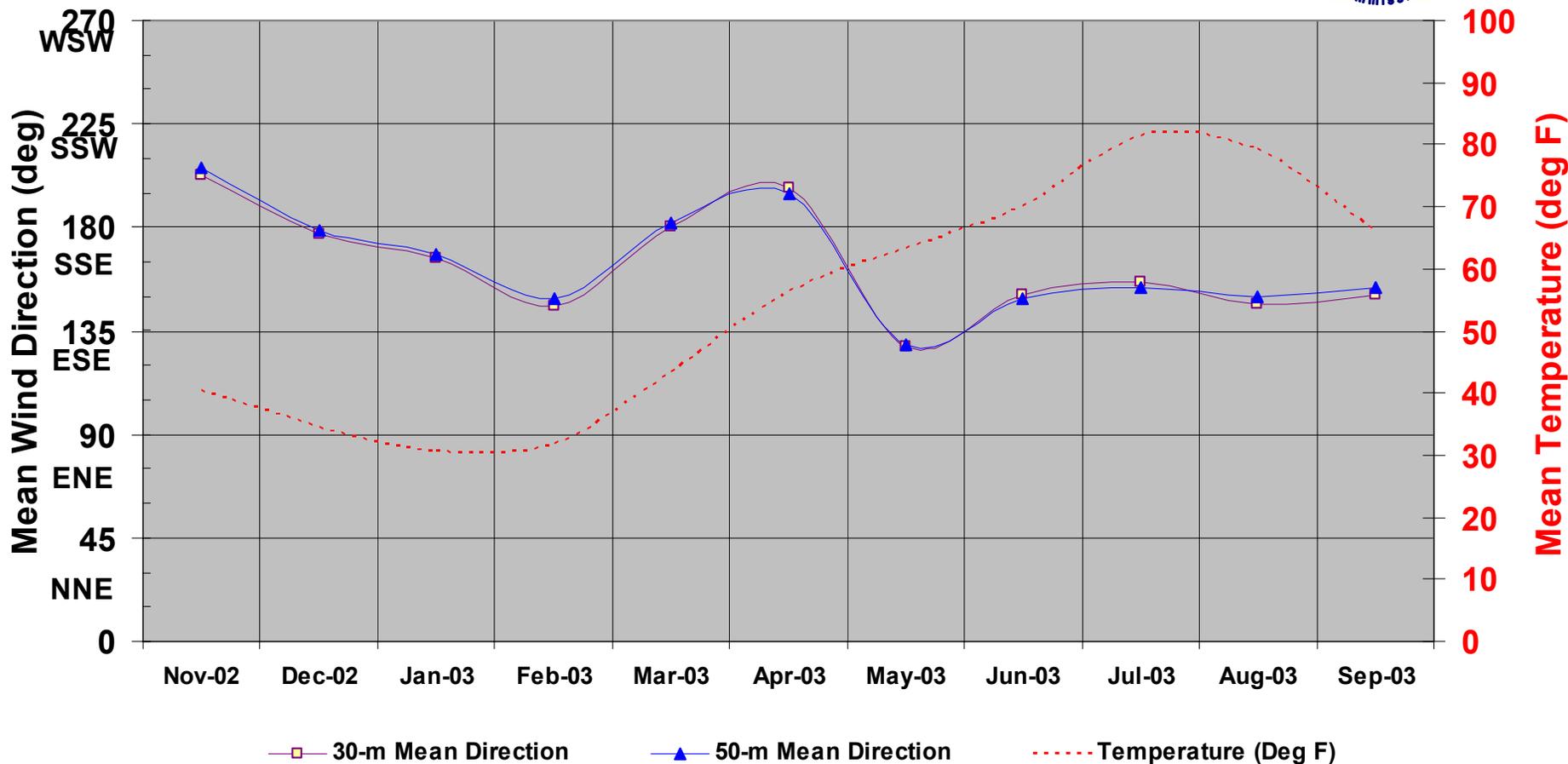
Chilocco Test Site Mean Monthly Wind Speed



Project Status

Technical & Management Issues (continued)

Chilocco Test Site Mean Monthly Wind Direction



Project Status (continued)

Activities to be Completed

- **By late November complete cultural studies and provide requirements for development phase.**
- **By early December 2003, the economic model will be completed. The potential economic benefits to Kaw Nation will be better defined.**
- **Complete the Feasibility Report and provide pro forma economics & Business plan by early Jan 2004.**

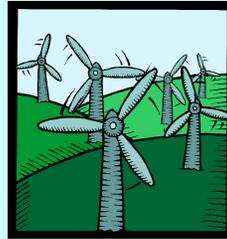
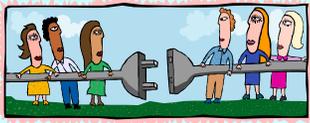
Future Plans

- **Options for Tribal ownership or third party financing will be analyzed and explained for EC/GC decision.**
- **By end Jan 2004, the Nation will decide whether or not to apply for a Development Grant.**
- **Obtain direction by Resolution from Kaw Nation on the Development Grant Application.**
- **Prepare Grant Application for review and approval by EC for DOE submittal.**



? Questions ?

Your Turn



Wiblahan

(Good-Bye)

